TITLE 326 AIR POLLUTION CONTROL BOARD

#96-5(APCB)

SUMMARY/RESPONSE TO COMMENTS FROM THE SECOND COMMENT PERIOD

The Indiana Department of Environmental Management (IDEM) requested public comment from April 1, 1999, through April 30, 1999, on IDEM's draft rule language. IDEM received comments from the following parties:

Exide Corporation	(EC)
Quemetco Incorporated	(QI)

Following is a summary of the comments received and IDEM's responses thereto.

Comment: Exide Corporation (Exide) should not be subject to the same lead emission limit as Quemetco, Inc. (Quemetco) because Exide's location is in a less urban, less densely populated area compared to Quemetco's location in Indianapolis. The residences nearest to Exide are three thousand five hundred (3500) feet away. Zoning restrictions around Exide's facility ensure that residential areas will not be located any closer to our plant. In addition, Exide should be regulated differently from Quemetco due to different conditions prevailing within our plant. (EC)

Response: IDEM believes the draft emission limits on lead smelting operations are very achievable. In fact, performance testing at both Exide and Quemetco has demonstrated their ability to comply with IDEM's emission limits. IDEM disagrees that differences in Exide's operating conditions are sufficient to justify a different emission limit from Quemetco. The same lead emission limitations would apply to every smelter in Indiana under this draft rule. Exide and Quemetco are the only currently operating lead smelters in Indiana. Applying different limits does not coincide with U.S. EPA's determination in setting the federal maximum achievable control technology (MACT) standard that the same numerical limit shall apply to both major and smaller (known as "area") sources, and regardless of a smelter's location.

IDEM considers the zoning restrictions insufficient in protecting public health, in this instance. In fact, U.S. EPA has stated that residences located thirty (30) miles from a secondary lead smelter are considered to be exposed to hazardous air pollutant (HAP) emissions. (See 59 FR 29755, June 9, 1994; preamble to proposed rule for secondary lead smelting). This environmental impact assessment is based not on a large smelter emitting at major source levels, but rather on minor operations emitting at area source levels. Exide's HAP emissions are subject to permitted restrictions keeping these toxic pollutants to area source levels.

U.S. EPA performed an analysis of the six (6) lead smelters nationwide not qualifying as major sources to determine whether the listing of these area sources for regulation was justified. U.S. EPA considered factors such as the quantity of emissions, the toxicity of the HAPs, population exposure, and the geographical distribution of the sources. U.S. EPA found that the threat of adverse effects to human health

from area sources in the secondary lead smelter category is sufficient to support regulation, even for those sources in areas meeting the requirements of the national ambient air quality standard (NAAQS) for lead.

The actual impact on surrounding communities is not limited to the adverse health effects of lead because secondary lead smelters emit a large number of pollutants. Lead compounds were used as a surrogate pollutant for metal HAPs, and total hydrocarbons were used as a surrogate pollutant for organic HAPs emitted from smelters. U.S. EPA has performed scientific assessments that provide estimates of the associated health risks of fourteen (14) of these HAPs. Of ten (10) potential carcinogens with quantitative assessments, four (4) are known human carcinogens. These are benzene, arsenic, chromium, and nickel. In addition to cancer risk, U.S. EPA has examined the public health risks associated with elevated blood lead levels. Children may be particularly at risk as atmospheric lead deposits on soils, crops, street and playground surfaces. Soil lead, which serves as a continuous source of outdoor and indoor household dusts as well as a direct exposure route for young children, is relatively insoluble and can continue to accumulate indefinitely. Now that lead has been banned from gasoline, industrial sources of lead emissions are the primary source of lead in the ambient air.

Comment: The proposed rulemaking is contrary to U.S. EPA procedures for development of national emissions standards for hazardous air pollutants (NESHAP) by imposing requirements on Indiana smelters that are more stringent than those applicable to smelters in other states. This state rule would create a decidedly uneven playing field by providing a competitive advantage for lead smelters in other states. (EC)

Response: IDEM believes the draft rule is necessary to maintain Exide's and Quemetco's current environmental performance, rather than adopting the MACT standard without modification, which would allow these smelters to increase their lead emissions from current levels. Based on performance testing of each stack at both Indiana smelters over several years, it is expected that neither Exide nor Quemetco would find it necessary, as a result of this rulemaking, to install additional emission controls for existing operations. Because this rule reflects Exide's and Quemetco's current emissions, the rule does not put them at a disadvantage with smelters in other states.

Regarding the draft rule being more stringent than the MACT standard, section 112(d) of the Clean Air Act (CAA) Amendments of 1990, outlines the procedures for developing MACT. Paragraph (d)(7) is entitled 'Other requirements preserved' in which it states a MACT standard shall not be construed to replace the requirements of a more stringent emission limit issued by a state. "No emission standard or other requirement promulgated under this section shall be interpreted, construed or applied to diminish or replace the requirements of a more stringent emission limitation or other applicable requirement established pursuant to section 111, part C or D, or other authority of this Act or a standard issued under State authority."

This "anti-backsliding" provision supports IDEM's belief that Indiana lead smelters should continue their current and acceptable air pollution control practices, without being allowed to downgrade to a national average.

Comment: The federal MACT limits were set at a level sufficient to protect public health, thereby making IDEM's draft emission limits unnecessary to protect air quality, and therefore cannot be justified in

terms of Indiana's statutory requirements for environmental rulemaking. HEPA filters should not be required on baghouses, and are technically infeasible for Exide's operation. Exide believes the draft rule is arbitrary, capricious, and contrary to law. (EC)

Response: IDEM disagrees that justification does not exist for employing different limits in the draft rule compared to the emission limits in the MACT standard. There is convincing evidence within U.S. EPA's background information documents that supports IDEM's contention that the existing state standard for lead smelters is more appropriate than the federal rule. Moreover, Indiana has extensive experience with regulating this type of operation, and through state regulation has assured that industry can operate in Indiana without posing a health threat to its citizens. The CAA clearly allows Indiana to retain its long-standing lead emission rule in the event a federal MACT standard is promulgated.

The federal MACT standard is not a health-based standard, but rather has been developed based on the effectiveness of the best controls currently available. According to U.S. EPA, "Section 112 of the CAA replaces the previous system of pollutant-by-pollutant health-based regulation that proved ineffective at controlling the high volumes and concentrations of HAPs in air emissions. The provision directs that this deficiency be redressed by imposing technology-based controls on sources emitting HAPs, and that these technology-based standards may later be reduced further to address residual risk that may remain even after imposition of technology-based controls" (59 FR 29756).

IDEM disagrees with the position that this rulemaking has not adhered to IC 13-14-8-4 or IC 13-17-1-1. Extensive research and discussion have preceded the published notice for public comment, and accepted principles for standards setting have been applied by IDEM. The requirements in the draft rule build upon existing state requirements, applicable only to Quemetco currently, which are consistent with the intent of the CAA and its reliance on emission reduction achieved by the best performing sources. It has remained IDEM's goal from the beginning to produce a uniform, legal, consolidated, and fair regulation. This draft rule meets these criteria.

<u>Justification for requiring different limits from the federal standard:</u>

The reasons for establishing limits that are different from the federal MACT limit include:

1) A state rule for lead already exists, which includes an emission limit for Quemetco's main process source that is similar in stringency to that proposed in this rulemaking.
2) The CAA says backsliding to the federal limit is not required, particularly for the best of the 'averaged best controlled sources'.
3) IDEM believes it is not appropriate to relax our lead standard since U.S. EPA's objective is to require controls known to be the maximum achievable technology.
4) The draft limits are achievable, and have been achieved, at every Quemetco and Exide stack by an adequate margin over several years.
5) Exide and Quemetco should continue their high standard for operating and maintaining pollution control equipment.
6) IDEM does not agree with U.S. EPA's alternative methodology for selecting the MACT limit.

The emission limit for process sources at secondary lead smelters is proposed by IDEM at one milligram of lead per dry standard cubic meter of air (1.0 mg/dscm). This value is significantly less than the federal allowance of two (2.0) mg/dscm for several reasons. One of the more important factors IDEM relied upon in choosing the limit is that for several years Quemetco has been subject to an emission rate for process sources practically equal to one (1.0) mg/dscm, and has repeatedly demonstrated an ability to comply with it. The previous limit to which Quemetco was subject in 1988 was even more stringent regarding their main stack.

Another primary factor IDEM used was an analysis of all available stack testing data at both smelters. Stack test reports from Quemetco and Exide indicate a variability at each process stack that would allow a consistently achievable limit of one (1.0) mg/dscm with a sufficient margin. The arithmetic mean of Exide's process stacks from testing between 1993 and 1996 is thirty-four hundredths (0.34) mg/dscm, and ranges from twenty-three hundredths (0.23) to forty-six hundredths (0.46) mg/dscm. Quemetco's main process stack averages thirty-two hundredths (0.32) mg/dscm over the last four testing reports, and ranges from five-hundredths (0.05) to fifty-one hundredths (0.51) mg/dscm. High efficiency particulate air (HEPA) filters are not used at either lead smelter on "process sources," such as blast furnaces, and would not be required for this type of operation under IDEM's draft rule.

Section 112(d)(2) of the CAA authorizes U.S. EPA to develop a standard that could include an emission limitation with a design, equipment, work practice, or operational standard. IDEM's draft rule combines a numerical emission limit with an equipment standard. Ventilation air from operations other than process sources is required in the draft rule to be conveyed to a control device, such as a fabric filter baghouse, that also includes high efficiency HEPA filters, as defined in the NESHAP. These 'non-process sources' are called "process fugitive sources" and "fugitive dust sources," and are generally subject to both an emission limit and HEPA filters in IDEM's draft rule. An example of a process fugitive source is a refining kettle, and an example of a fugitive dust source is a material storage and handling area.

Quemetco currently meets the control requirements regarding HEPA filters, in order to comply with existing state lead limits. IDEM's draft rule requires HEPA filters for the purpose of utilizing the best filtering controls and for reducing HAP emissions to levels that are, incidentally, easily achievable by most lead smelters in the United States. HEPA filters, used in conjunction with a baghouse, would be required for new stacks exhausting process fugitive and fugitive stack emissions at Exide, Quemetco, and other new lead smelters in Indiana.

Justification for requiring more efficient filters:

The need to use HEPA filters on process fugitive and fugitive stacks, in certain instances, is based on the following reasons:

1) Quemetco currently maintains baghouse/HEPA filter controls for several of its stacks.
2) HEPA filters are required in existing state regulations applicable to Quemetco.
3) The MACT standard specifies HEPAs as an option.
4) IDEM desires to not relax this equipment standard, thereby keeping actual HEPA filters in continued use.

5) It appears U.S. EPA has overlooked the baghouse/HEPA control scenario for process fugitive and fugitive stacks, as the maximum achievable control technology for existing sources.

Better controls are achievable than what the federal standard requires:

Section 112(d)(3) of the CAA specifies the procedures for establishing emission standards for new and existing sources, and states that the maximum degree of reduction in emissions that is deemed achievable shall not be less stringent than the average emission limitation achieved by the best performing five (5) sources for which the Administrator has or could reasonably obtain emissions information in the category or subcategory with fewer than thirty (30) sources. This is the standard that applies to this MACT category, because there are fewer than thirty (30) secondary lead smelters in the United States.

The control equipment designated by U.S. EPA as MACT for existing process fugitive sources is a baghouse without HEPA filters. U.S. EPA stated the following in June 1994 (59 FR 29765, preamble to the proposed NESHAP): "There are no controls more stringent than those established by the MACT floor described above for process fugitive sources." Yet, U.S. EPA conducted a site visit at Quemetco/RSR in Indianapolis in early 1991 for the purpose of identifying lead smelters with the most effective air pollution control systems, and stated in their report that roof vent baghouses are followed by HEPA filters, and the report includes stack test data from April 1991 (A-92-43, II-B-8, background information document). This is just one example of the surveyed lead smelter population that already utilized a baghouse/HEPA filter combination prior to the federal rule proposal. Yet, there was no published justification for excluding this better filtering technology as a MACT option during development of the federal rule.

Public comment and U.S. EPA response to omitting HEPA filters:

U.S. EPA received a comment from STAPPA/ALAPCO, an association of state environmental agencies and local agencies, during the public comment period immediately following publication of the proposed MACT standard requesting an evaluation of HEPA filters as MACT. In June 1995, U.S. EPA acknowledged in writing that "several" secondary lead smelters have HEPA filters following baghouses that control ventilation exhausts. A subsequent U.S. EPA response in June 1997 acknowledged these secondary, high efficiency filters may provide improved protection from bag leaks, apparently contradicting an earlier U.S. EPA response to comments that HEPA filters do not significantly improve emissions of lead from smelters, compared to baghouses alone (A-92-43, section 2.3.2). The lead smelting NESHAP defines HEPA filter efficiency as removal of ninety-nine and ninety-seven hundredths percent (99.97%) of all particles three-tenths (0.3) micrometers and larger. The 1991 stack test results from U.S. EPA's final trip report to Quemetco show a lead concentration of six-hundredths milligram per dry standard cubic meter (0.06 mg/dscm), much less than the MACT limit of two (2.0) mg/dscm (Table 3). A comparison with another process fugitive stack result from this same report shows an increase of eighty percent (80%), or five (5) times as much lead, from a stack with a baghouse without HEPA filters. The contention that HEPA filters can substantially reduce lead emissions is also supported by recent stack test data reported to IDEM. More significantly than test periods, though, meaningful reduction occurs at second-stage HEPAs during normal operation and maintenance periods due to the regular release of particulates through numerous, small

bag holes when the dust cake is cleaned off the bags at the first-stage filters. Therefore, HEPA filters are included in this draft standard because they provide superior control, are achievable by lead smelters, and requiring HEPA filters meets the intent of the CAA in establishing maximum achievable control technology.

Regarding the technical feasibility of requiring Exide to install HEPA filters, IDEM believes that Exide can meet this standard for all new stacks ventilating process fugitive and fugitive dust emissions. However, IDEM is not requiring Exide, based on cost and technical feasibility, to retrofit existing baghouses.

The federal standard does not limit alarms on control devices:

An operational and work practice standard is proposed by IDEM that requires all baghouses controlling process sources, and process fugitive sources, that are not equipped with HEPA filters, be subject to a limitation on the total duration of alarms from a bag leak detection system equal to 5% of the total operating time in a six month reporting period. This standard was recently promulgated by the U.S. EPA in the ferroalloys production NESHAP, subpart XXX, as well as other MACT standards nearing promulgation, with the stated goal of providing greater assurance that baghouses would be properly operated and maintained, and that the emission limit would be met, through this enforceable operating limit. Reporting, recordkeeping, and corrective action requirements in IDEM's draft rule are similar to the above mentioned federal rule, with the exception that records of total operating time during each reporting period are required to be kept.

Comment: Exide requests further explanation for IDEM not adopting the MACT limits as other states have done. IDEM's proposed limits are excessively stringent, and IDEM has not stated why MACT is not stringent enough. A compelling need for this rulemaking has not been established, therefore this action is contrary to IDEM's statutory requirements. (EC)

Response: The following explanation highlights a series of relevant U.S. EPA rules, preambles, background information documents, performance testing reports, and ambient air monitoring reports, that led IDEM to establish a different standard from U.S. EPA. Although all of the technical information has been previously published, this is the first compilation of U.S. EPA statements and data, public comments on the MACT rulemaking, and IDEM test reports, that supports IDEM's draft rule.

- IDEM disagrees with U.S. EPA's justification for altering the CAA procedure for establishing MACT emission limits. U.S. EPA expanded the best controlled sources pool, consisting of five (5) lead smelters, to the entire group of twenty-three (23) sources, apparently contrary to its own guidance and the statutory methodology for setting MACT standards.
- In other MACT standards U.S. EPA has excluded the worst performing sources in those cases where testing variability of fabric filters warranted a limited expansion of the selection pool to determine MACT limits.
- IDEM's draft rule correctly distinguishes between process stacks and fugitive dust stacks in setting different limits.
- IDEM does not believe the federal standard provides an ample margin of safety.

C The federal standard does not follow the principle of central tendency (e.g. arithmetic average) in U.S. EPA's 1994 final rule notice regarding the "higher floor interpretation" for setting MACT limits, which nullifies the more lenient method of emphasizing poorly controlled sources.

U.S. EPA methodology for lead smelters:

The U.S. EPA MACT emission limit was selected primarily on the basis of the results of U.S. EPA-sponsored tests at three (3) baghouses used to control smelting furnace exhaust. The average lead concentration for each of these baghouses ranged from 0.60 to 0.70 mg/dscm, with an average for nine (9) sample runs of 0.66 mg/dscm. Individual runs ranged from 0.28 to 1.03 mg/dscm for these process sources. Prior to the U.S. EPA testing program, emissions data from previous studies of the lead smelting industry were reviewed, which contained data from all twenty-three (23) facilities subject to regulation, including those lead smelters not currently operating. About sixteen (16) secondary lead smelters are currently operating in the U.S. The average emission limitation achieved by the best performing five (5) sources nationwide for process baghouse exhaust, as assessed by IDEM, is 0.12 mg/dscm (Table 3-4, Volume 1, Background Information Document, June 1994). Due to baghouse variability during testing, U.S. EPA chose to expand the selection pool from five (5) sources to the entire list of smelters to determine the MACT limit of 2.0 mg/dscm (59 FR 29767). However, the average emission limit achieved by the best performing fifteen (15) sources, for instance, is just 0.35 mg/dscm, meaning the emissions from the worst performing group of smelters are much higher than this average. Combining all U.S. EPA process stack test results, there are seventeen (17) secondary lead smelters, out of twenty-three (23) total plants, that met IDEM's draft limit of 1.0 mg/dscm.

U.S. EPA methodology for other MACT standards:

IDEM acknowledges that it may be within U.S. EPA discretion to apply a limited variability analysis of baghouse data, as has been done occasionally with other MACT standards. A MACT-setting methodology that results in, for example, sixty-six percent (66%) of all hazardous waste combustors currently capable of meeting a MACT floor limit for lead without modification to their baghouses, appears to reach some brink of acceptability for explicitly expanding the top group of best controlled sources (64 FR 52867, September 30, 1999). The MACT limit for lead in the final rule on existing hazardous waste incinerators is 0.24 mg/dscm; or about eight (8) times more stringent than for lead smelters, partly due to the U.S. EPA's exclusion of stack data from the worst performing incinerators. The MACT limit for lead from new incinerators was set at 0.024 mg/dscm, or eighty (80) times more stringent than the lead smelter NESHAP. U.S. EPA failed to screen out the poorly-controlled outliers from the expanded MACT pool as required by statute, and as was done in this incinerator MACT/RCRA combined authority rule. IDEM believes the divergence between two-thirds (2/3) of incinerators meeting a new standard on lead emission reduction versus every operating lead smelter already meeting a new standard is inappropriate because the worst of the poorly controlled sources have an undue effect on the establishment of the MACT limit.

IDEM disagrees with U.S. EPA's justification for the federal standard:

In the preamble to the proposed NESHAP, U.S. EPA concluded its description of its alternative methodology by stating the following: "These data may lead to the conclusion that the MACT floor emission limit (based on the average emission limitation achieved by the best performing five (5) sources) should also be substantially lower than two milligrams of lead (2.0) mg/dscm. However, it should be kept in mind that these compliance data, like the U.S. EPA test data, were collected over a brief time period, i.e., three (3) one (1)-hour runs. Therefore, these data represent only a "snapshot" of the performance of each source and do not necessarily represent an emission level that can be continuously achieved on a long-term basis by the MACT floor control technology." (See 59 FR 29768). This is the only justification published in the Federal Register for determining, in effect, MACT as the average of the nineteenth (19^{th}) and twentieth (20^{th}) best performing sources, out of twenty-three (23) plants, including those not currently operating. The nineteenth (19^{th}) highest emission rate, when multi-site data is excluded, is 1.6 mg/dscm, and was measured in 1992 at a lead smelter in Missouri. The emission rate of 2.3 mg/dscm is the highest lead concentration among the then operating smelters, and coincidentally occurred at Quemetco/RSR in Indianapolis. U.S. EPA acknowledged at rule proposal that this smelter has since upgraded its air pollution control systems, and that the original test data from 1988 was used in setting MACT, the oldest data of the entire set. IDEM disagrees with the use of outdated test results when updated test results from the same smelter were available in 1991. The U.S. EPA concludes, "Based on this information, the U.S. EPA selected an emission limit of 2.0 mg/dscm as a reasonable value between 1.6 and 2.3 mg/dscm" (59 FR 29768).

U.S. EPA states in the background information document for secondary lead smelting that the length of a stack test should be representative of the industry and process being tested, that the testing time period should correspond to the cycles of the emission control device, and that the length of the sampling time should be specified in the applicable regulation. In general, a performance test should consist of three (3) to six (6) runs, each lasting from thirty (30) minutes to three (3) hours. (Appendix B, Section 3.0 - Performance Test Methods). In light of U.S. EPA's reason for expanding the best performing group from five (5) to the entire list of smelters, it is interesting that the stack testing program initiated by U.S. EPA subsequent to receiving existing industry data would not increase the number of test runs or lengthen the sampling time. Of course, U.S. EPA received comments prior to promulgation specifically on the generous nature of the MACT limit, and on the exclusion of HEPA filters on baghouses as MACT equipment. One commenter suggested that Test Method 12, which was included in the proposed NESHAP, may be an inappropriate method and that longer sampling times may be required to measure emissions. The U.S. EPA response, contained in the background information docket, was that the proposed sampling time of one (1) hour and the use of Test Method 12 accurately measure the lead emissions as prescribed.

IDEM agrees that a one (1) hour sampling time period is sufficient, thereby not being too "brief" or just a "snapshot" as U.S. EPA previously portrayed it. This belief is based on a June 1986 U.S. EPA report entitled 'Operation and Maintenance Manual for Fabric Filters' (EPA/625/1-86/020). It states that the small holes normally present in baghouse filters are usually covered easily by a dust cake; thus, emission of fine particulate increases after the bag is cleaned. The report says the increase in emissions is relatively short, however, and diminishes as the small holes are covered again. The Research and Education Association describes this time period of variability in 'Modern Pollution Control Technology, Volume 1: "For a short time after new bags are installed or immediately after the bags have been thoroughly cleaned, visible emissions bleed through the fabric. In most cases, bleeding ceases in a few seconds or several

minutes at the most." These two accounts reinforce the notion that a one (1) hour sampling duration is actually sufficient, although U.S. EPA first denied it in 1994 (at 59 FR 29768) as justification for expanding the pool of sources, but then in 1995, affirmed the one (1) hour duration in their response to public comment, though not published in the Federal Register.

Performance test results from non-process sources:

IDEM is proposing a stack emission limit of five-tenths (0.5) mg/dscm for 'non-process' type sources, that is, process fugitive sources and fugitive dust sources. This limit is lower than IDEM's draft limit for process sources, 1.0 mg/dscm, for the following reasons. In the NESHAP, U.S. EPA has not made a distinction, regarding emission limits, between these different types of manufacturing operations. U.S. EPA did not provide a full explanation on why the MACT limit that is applicable to the cleaner, 'non-process' type operations is the same limit as that for the much different process sources. Exhaust gases emitted directly from a high temperature smelting furnace have been categorized by U.S. EPA as a process source. Examples of a process fugitive source include: molds during tapping, chutes, refining kettles, dryer charging hoppers, and skip hoists. Emission stacks ventilating the battery breaking area, refining and casting area, and material storage and handling area are examples of fugitive dust sources.

IDEM's selection of 0.5 mg/dscm is based on analysis of stack test data for Indiana smelters and on U.S. EPA test data for lead smelters in the U.S. (Table 3-12 of the BID, June 1994). It is clear that a comparison of nationwide test results for process fugitive sources versus process sources shows a huge gap between each group of test data. Fugitive dust emissions from stacks also show lead concentrations per volume of air quite different from process sources, as would be expected considering the operations involved. The average test result for process sources is much higher than for 'non-process' sources whether it's based on the best performing smelters or on all smelters. Extensive test data from Exide and Quemetco are also consistent with the conclusion that the lead concentration emission rate is much lower for process fugitive and fugitive emissions compared to exhaust directly from smelting furnaces. A state rule already existed prior to promulgation of the federal rule that requires Quemetco to meet different emission limits, one applies to their main process stack and another limit applies to operations not associated with process sources. The emission limit in the current state rule for non-process stacks is sixty-seven (67) times lower than the emission limit for process stacks. Therefore, IDEM believes the principle of using two (2) different limits for two (2) different types of sources is warranted - process versus nonprocess emissions.

In support of IDEM's belief that 0.5 mg/dscm is an appropriate and fair limit, an objective review of all available stack test reports since 1991 for both Indiana smelters was performed. Although this limit is much lower than the federal MACT limit of 2.0 mg/dscm, IDEM's analysis of the test results shows that the draft limit is very achievable on a consistent basis at both Exide and Quemetco. A review of performance test results from all lead smelters throughout the Unites States also supports the conclusion that IDEM's draft limit for process fugitive and fugitive sources is regularly attainable. IDEM believes this draft limit has accounted for a sufficient margin of stack test variability, as was done by U.S. EPA. This margin between the draft limit and the various test results at each smelter is necessary due to operation and maintenance characteristics of fabric filter control devices.

At Exide, the arithmetic mean for emissions from process fugitive and fugitive stacks is 0.13 mg/dscm. At Quemetco, the average emission rate from testing process fugitive baghouses followed by HEPA filters is 0.05 mg/dscm, which is ten (10) times below IDEM's draft limit of 0.5 mg/dscm. The stack with the highest individual test rate at Exide, a process fugitive source, averages 0.23 mg/dscm, and ranges from 0.08 to 0.46 mg/dscm. The variability of test results over several years is about the same for both smelters, with no data showing any process fugitive or fugitive stack exceeding the draft limit at either smelter. IDEM believes that setting this limit will encourage Exide to continue to operate and maintain their control equipment such that the previously seen emission rates between 0.08 and 0.23 mg/dscm will become consistently achievable, and well under the draft limit. It should be noted that the amount of lead emitted per hour from process fugitive and fugitive stacks at both smelters is less than one quarter (¼) of all lead emissions from the smelters. The remaining amount of lead is emitted directly from blast furnaces or other types of smelting furnaces. In summary, it is IDEM's belief that an adequate margin of variability, due to baghouse maintenance characteristics, has been included in IDEM's draft standard, based on baghouse performance demonstrated during considerable stack testing.

The federal standard does not provide an ample margin of safety:

Section 112(d)(4) of the Act permits the Administrator to consider the national ambient air quality standard (NAAQS) for lead, for example, when establishing MACT. It also requires an agency to apply an "ample margin of safety" with this discretion. U.S. EPA's response to public comments on this discretion simply mentioned that a "comparison of ambient lead concentrations to the lead NAAQS was part of the overall analysis of adverse health effects." The NAAQS health threshold for lead is presently one and five-tenths micrograms per cubic meter (1.5 $\mu g/m^3$), and has not been revised since it was established in 1978. U.S. EPA stated in the 1994 lead smelter rule proposal that if the standard were lowered someday to five-tenths (0.5) $\mu g/m^3$, the number of people potentially exposed would average about one hundred (100) persons per lead smelter across the country (59 FR 29755). Analysis of the margin between the current NAAQS limit and currently allowable lead emissions resulting from the MACT standard was done by IDEM, consisting of two parts: First, an identification of the worst-case percentage of the NAAQS limit from ambient air monitoring results, as averaged over a three (3) month period, to determine how high the NAAQS ceiling limit is for Indiana smelters. Second, a determination of the gap between the MACT limit and stack test results was done based on all testing reports received by IDEM since 1991.

Ambient air monitoring results for 1996, 1997, and 1998 from Exide's two (2) monitors produces an arithmetic mean of thirty-three percent (33%) of NAAQS. However, the third quarter of 1998 shows a sustained level of sixty percent (60%) of NAAQS was measured on one side of the Exide plant, as averaged over a calendar quarter. The ambient air monitoring results from Quemetco's two (2) monitors are much lower than Exide, with the highest quarter measured being 0.08 $\mu g/m^3$, also in the third quarter of 1998. For the second part of this analysis, regarding Exide's MACT compliance cushion, the arithmetic mean of all three (3) types of emission sources, process, process fugitive, and fugitive stack emissions, is 0.21 mg/dscm. Consequently, MACT is about one thousand percent (1000%) higher than Exide's emissions, or put another way, Exide's stack test emissions could increase nearly tenfold, as an average,

before an exceedance of the federal emission limit would occur. A 1991 stack test of Exide's main ventilation baghouse was twenty-five (25) times lower than the federal MACT limit.

More important than occasional stack tests, if maintenance practices during normal operation are allowed to degrade toward the less stringent MACT limit because of this extended leeway between current performance and allowed performance, then it is likely that any ambient air monitoring done will show higher levels of lead in the air, perhaps exceeding NAAQS due to this huge gap permitted by MACT. Comparing the recent increase from one-third (**a**) to nearly two-thirds (**b**) of the NAAQS limit directly to this one thousand percent (1000%) disparity suggests there exists a reasonable possibility that residences surrounding the Exide plant may realize a significant increase in exposure to lead and other carcinogenic HAPs. IDEM believes the impact of the MACT limit combined with these volatile stack emission rates does not promote a continuing ample margin of safety.

In addition, a comparison of the monitoring, reporting, and record keeping requirements of this NESHAP standard to other state and federal rules indicates a significant potential deficiency. Minimal reporting is allowed regarding HEPA filter monitoring, and only a minimally descriptive summary is required for the maintenance and monitoring of baghouses. Regarding the reporting of bag leak detection alarms, IDEM notes that the minimum sensitivity of this device was raised in 1997 from one (1) milligram to ten (10) milligrams (mg/dscm) after promulgation of the final rule in 1995, although this maximum achievable detection technology was in use at lead smelters and capable of the more stringent sensitivity. The cumulative effect of the federal regulatory approach is that an ample margin of safety does not exist if both Indiana smelters were allowed to follow only the U.S. EPA's MACT standard.

U.S. EPA's mathematical principle of central tendency:

U.S. EPA solicited public comment on the appropriate interpretation of section 112(d)(3) regarding the meaning of "best performing sources" when determining the MACT floor. Existing source standards shall be no less stringent than the average emission limitation achieved by the best performing twelve percent (12%) of the existing sources for categories and subcategories with thirty (30) or more sources, or the average emission limitation achieved by the best performing five (5) sources for categories or subcategories with fewer than thirty (30) sources. These two minimum levels of control define the MACT floor for new and existing sources. Two interpretations have been evaluated by U.S. EPA for representing the MACT floor for existing sources. One interpretation is that the MACT floor is represented by the worst performing source of the best twelve percent (12%) performing sources (i.e. 88^{th} percentile source). The second interpretation is that the MACT floor is represented by the average emission limitation achieved by the best performing sources, where the average is based on a measure of central tendency, such as the arithmetic mean, median, or mode (e.g. 94^{th} percentile source). This latter interpretation is referred to as the "higher floor interpretation." In a June 6, 1994 final rule notice (59 FR 29196) U.S. EPA presented its conclusions concerning MACT floor determinations for existing sources. Based on a review of the statute, legislative history, and public comments, U.S. EPA believes that the intent of Congress was clear – the "higher floor interpretation" is a better reading of the statutory language.

It is IDEM's belief that the emphasis on the principle of central tendency by U.S. EPA and Congress is very important, whether it is based on the top five (5) sources, or on an expanded pool of sources, or

even on the entire group of sources, as was done with this MACT standard. U.S. EPA selected 2.0 mg/dscm for MACT as a "reasonable value" between 1.6 and 2.3 mg/dscm. However, this is a weighted average, and is a skewed representation of a mathematical average. A central tendency of emissions from a limited pool of the best controlled sources was not utilized in this case. IDEM disagrees with the U.S. EPA methodology of allowing the test results from poorly performing operations to outweigh the best performing operations, and with using the single worst performing source of the entire group of operating smelters to establish the MACT limit.

Comment: The requirement for a minimum removal efficiency certified by the manufacturer for dry collection pavement cleaning equipment is unnecessary. IDEM has not established a connection between lack of filters on pavement sweepers and ambient air quality. (EC)

Response: The NESHAP for secondary lead smelting requires a vehicle wash device at each exit to control fugitive dust. This new requirement has caused Quemetco to recently install a vehicle wash device which will reduce the quantity of lead on pavement found previously. IDEM agrees with the commenter on the need to further regulate outdoor fugitive emissions, and has withdrawn this provision affecting pavement sweepers.

Comment: The stack testing requirements should be clarified to establish that test results available at the time of the rule's promulgation are sufficient to justify biannual compliance tests. 326 IAC 20-13-5 regarding test notification and reporting is unnecessarily confusing and should be deleted. (EC)

Response: IDEM has modified the draft rule regarding biennial compliance testing such that performance testing of sources conducted within twenty-four (24) months prior to the effective date of this rule shall be considered valid compliance tests. Test notification and reporting requirements will be simplified by citing just 326 IAC 3-6.

Comment: The requirement for continuous monitoring of air pressure differential for total building enclosures is technically infeasible and economically unreasonable. Exide has already demonstrated compliance with these requirements pursuant to the NESHAP. Ventilation to the baghouses effectively creates negative building pressure. If a baghouse malfunction occurs, the permit requires immediate corrective measures under an IDEM approved operation and maintenance plan. Further, the baghouses are already monitored continuously under the permit. The requirement to correct the cause of an alarm within thirty (30) minutes is unreasonable, arbitrary, and capricious. Wind gusts could easily trigger such alarms, but do not indicate a failure of the total building enclosure. (EC)

Response: IDEM disagrees that the proposed system is too costly considering the MACT standard includes a similar requirement, and considering the benefit of this type of monitoring. IDEM believes a recorded continuous demonstration of compliance is necessary for a period of twelve (12) months after the effective date of this rulemaking. 326 IAC 20-13-6(e) of the draft rule has been changed to include this expiration date. If the net effect of any physical changes such as ventilation capacity or building size may potentially effect air pressure readings of the building, then the owner or operator will be required to resume monitoring as before for a minimum of twelve (12) months.

For smelters relying on the total enclosure option to ensure in-draft through any doorway opening, the NESHAP allows owners and operators to use a propeller anemometer to determine compliance, as an alternative to the installation of a differential pressure gauge. However, IDEM believes the objective of operating a smelter with as few doors open for as short a period as possible, particularly during typically windy days, is best demonstrated through a continuous recording device during an initial operating period. Quemetco has been subject to an identical requirement for several years, and IDEM believes this method is reasonable and necessary. The draft rule has been changed to clarify that corrective actions shall be initiated within thirty (30) minutes of an alarm rather than taken or completed.

Comment: The proposed opacity limits are unnecessarily stringent, and serve no function that is not better served by existing permit and NESHAP requirements. The proposed five percent (5%) opacity limits are arbitrary and capricious, impose regulatory burdens that cannot be justified in terms of any benefit to the environment, and should be deleted. (EC)

Response: IDEM disagrees this compliance tool should not be readily available to an inspector of a lead smelter. The continuous use of appropriate bag leak detectors is expected to alert smelter operators of excessive emissions prior to developing visible emissions that would exceed the draft opacity limits. U.S. EPA believes that opacity may be used as an indicator of gross baghouse performance. IDEM considers the operating procedures manual, which includes, for example, the inspection of baghouse components, the daily recording of pressure drop across each baghouse cell including HEPA filters, and the requirements associated with bag leak detection systems, to be primary methods for assuring compliance with the standard; and considers a visual opacity check to be a backup. U.S. EPA estimates the lead concentration of baghouse discharge from a lead smelter corresponding to five percent (5%) opacity would be ten (10) mg/dscm (59 FR 29773). This is ten (10) times the pollutant concentration of IDEM's draft standard.

Comment: The record keeping requirements for HEPA filters are vague. What records are required? What would IDEM consider to be an adequate certification of efficiency by the HEPA filter manufacturer? (EC)

Response: The NESHAP for secondary lead smelters defines HEPA filter under 40 CFR 63.542. The draft state rule requires sources that install these filters to retain a record of technical specifications from the manufacturer that would show an inspector the filters meet the definition of a HEPA filter.

Comment: The provision 326 IAC 20-13-6(b) is unnecessary, because the existing NESHAP already includes this requirement. (EC)

Response: 326 IAC 20-13-1(c) of the draft rule states that the NESHAP provisions are incorporated by reference by the air pollution control board, with the exception of certain portions of the federal rule. 40 CFR 63.544(c) contains the MACT limit of two (2.0) mg/dscm that IDEM proposes to strike from the rule. The remaining language of this section needs to be retained, however, and is now included at 326 IAC 20-13-7(f).

Comment: The term "new or reconstructed stacks or processes" in 326 IAC 20-13-3(b) should be defined to better inform the regulated community as to what the rule applies. (EC)

Response: The draft rule has been modified to include the case where a new or reconstructed affected source that is vented to a control device at Exide which operated prior to the effective date of this rule would not be subject to the HEPA filter requirement.

Comment: The requirement of no visible emissions for dust handling systems is arbitrary, vague, and is virtually impossible to comply with. The regulatory burdens and expense that would be created by the proposed rule cannot be justified in terms of any putative environmental benefit. (EC)

Response: The draft rule has been changed to provide more clarity regarding the repair of exterior dust handling systems. The revision is patterned after the ash conveying system provisions of the promulgated MACT standard for municipal waste combustors (60 FR 65425, December 19, 1995) by specifying the 'no visible emissions' standard applies only when visible emissions exceed five percent (5%) of an observation period. Reference Method 22 will be used to determine compliance, and consists of three (3), twenty (20)-minute observation periods (i.e. three (3) minutes of visible emissions observed is a violation over a maximum of sixty (60) minutes). These provisions do not apply during maintenance and repair of the dust handling system. The draft rule has also been modified such that the five percent (5%) opacity limit applies only to particulate matter emissions from any lead source.

Comment: Quemetco supports IDEM's efforts to make the requirements for secondary lead smelters uniform throughout the state, and to consolidate these requirements into one regulation. Quemetco is confident that it will continue to comply with the more stringent emission limits in the draft rule, including the five percent (5%) opacity limit. We believe that IDEM should retain the requirement from Quemetco's existing 326 IAC 15 lead rule to install continuous opacity monitors (COMs) for use on certain process emissions. However, Quemetco agrees with IDEM that visual checks of opacity are sufficient for process fugitive stacks, due to their lower emission rates and Quemetco's use of HEPA filters on these sources of lead. It is Quemetco's understanding that the existing ambient air quality monitoring network around its facility constitutes a pre-approved network, as required in the draft rule. (QI)

Response: IDEM has retained the emission limit for process sources from 326 IAC 15-1-2(a) currently applicable to Quemetco, and specified in the draft rule that HEPA filters shall be installed on baghouses controlling process fugitive and fugitive stacks. IDEM has not required COMs in this rulemaking based on U.S. EPA responses to public comment prior to rule promulgation. U.S. EPA believes that bag leak detection systems may be used as a more reliable indicator of baghouse performance. It is recognized these detectors have lower capital and operating costs than COMs. Because bag leak detection systems are more sensitive than COMs, they can detect the onset of bag degradation prior to baghouse failures such as bag tears. Baghouse inspection and maintenance programs can further improve baghouse performance by ensuring proper baghouse operation. These programs include monitoring of pressure drop across cells as well as inspecting bags for early identification of any required maintenance. Regarding Quemetco's comment on its ambient monitoring network, these monitors are considered by IDEM to be approved, provided the local air pollution control agency continues operating the network. The rule language has been revised for clarification. IDEM appreciates Quemetco's positive comments on this rulemaking.